UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
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QUALITY ASSURANCE MEMORANDUM FOR ORGANIC CHEMICAL ANALYSES

Date: August 18, 2016

To: Rob Rau
Office of Compliance and Enforcement, USEPA Region 10

From: Chris Pace, Chemist
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Subject: Quality Assurance Review for the Volatiles Analysis of Samples from the Serv-Um-Self Site

Project Code: OCE-012A
Account Code: 2016F10P303D8610007

The following is a quality assurance review of the data for volatiles analysis of samples from the above referenced site. The analyses were performed by the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

This review was conducted for the following samples:

16264000	16264001	16264003	16264004	16264005	16264006
16264007	16264008	16264009			

1. Data Qualifications

Comments below refer to the quality control specifications outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). No excursions were required from the method Standard Operating Procedure.

The quality control measures which did not meet Laboratory/QAPP criteria are annotated in the title of each affected subsection with "*Laboratory/QAPP Criteria Not Met*".

For those tests for which the EPA Region 10 Laboratory has been accredited by The NELAC Institute (TNI), all requirements of the current TNI Standard have been met.

2. Sample Transport and Receipt

Upon sample receipt, no conditions were noted that would impact data quality.

3. Sample Holding Times

The concentration of an analyte in a sample or extract of a sample may increase or decrease over time depending on the nature of the analyte. The holding time maximum criteria applied to soil and preserved water samples is 14 days from the time of collection. All samples were analyzed within the applicable criteria.

4. Sample Preparation

Samples were prepared according to the method.

5. GC/MS Tuning

The tuning summary agreed with the raw data. All p-bromofluorobenze ion abundance ratios met criteria. Sample analyses were preceded by a tune less than 12 hours prior to analysis.

6. Initial Calibration

Initial calibrations were performed on 6/28/16 for the target and surrogate compounds. The RRFs were ≥0.05 and the percent relative standard deviations (%RSDs) of the relative response factors (RRFs) met the criteria of ≤15% or correlation coefficients met the criteria of ≥0.99.

The second source verification (SSV) percent accuracies were 70-130% of the true values.

7. Continuing Calibration Verification (CCV) - "*Laboratory/QAPP Criteria Not Met*"

The CCV met the criteria for frequency of analysis and relative retention time (RRT) windows for all target and surrogate compounds. The RRFs were ≥0.05 and the percent accuracies were 80-120% of the true values for all reported results except for the following.

Acrylonitrile resulted with <80% accuracy on 7/1/16. The acrylonitrile results were all non-detects for the associated samples and qualified as estimated, "UJ". Associated samples: 16264000, 16264001, 16264002, 16264003, 16264004, 16264005 and 16264006.

8. Blank Analysis

Method blanks were analyzed with each sample batch to evaluate the potential for laboratory contamination and effects on the sample results. Target analytes detected in samples were reported without qualification if the responses were ≥5 times that of the blank(s). Detected sample results were qualified 'U' if the results were below this criteria. The sample concentration or the sample quantification limit, whichever is greater, was reported as the qualified result.

9. Laboratory Control Sample (LCS)

Data for laboratory control sample/laboratory control sample duplicates (LCS/LCSD) are generated to provide information on the accuracy and precision of the analytical method and the laboratory performance. The LCS/LCSD recoveries met the QAPP criteria of 50-150% with a RPD of ≤35.

10. Surrogate Spikes

Surrogate recoveries are used to help in the evaluation of laboratory performance on individual samples. The

surrogate recoveries met the laboratory criteria.

11. Matrix Spike/Matrix Spike Duplicate Analysis (MS/MSD)

MS/MSD analyses are performed to provide information on the effects of sample matrices toward the analytical method. An MS/MSD analysis was performed using sample 16264000. The recoveries met the QAPP criteria of 50-150% with a relative percent difference (RPD) of ≤35.

12. Internal Standard Performance

Internal standards performance criteria ensure that GC/MS sensitivity and response are stable during every analytical run. The retention time variations of all internal standards were within 30 seconds of the continuing calibration standard. The percent areas of all the internal standards were within the specified 50% to 200% of the continuing calibration standard for all reported results.

13. Compound Quantitation

The initial calibration functions were used for calculations. Reported quantitation limits were based on the initial calibration standards and sample size used for the analysis. Detected analyte concentrations below the sample quantitation limits were qualified as estimated "J".

All manual integrations have been reviewed and found to comply with acceptable integration practices.

14. Identification

All of the compounds detected in the analyses were within the RRT windows, met the USEPA spectral matching criteria and/or were judged to be acceptable.

15. Data Qualifiers

All requirements for data qualifiers from the preceding sections were accumulated. Each sample data summary sheet and each compound was checked for positive or negative results. From this, the overall need for data qualifiers for each analysis was determined. In cases where more than one of the preceding sections required data qualifiers, the most restrictive qualifier has been added to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier in light of the project's data quality objectives. Should questions arise regarding the data, contact Chris Pace at the Region 10 Laboratory, phone number (360) 871 - 8703.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable. No value is reported with this qualification.
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. No value is reported with this qualification.